Reforming LIBOR and other financial market benchmarks

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Introduction

LIBOR is determined each day, not based on actual transactions but through a poll in which banks are asked to provide an estimate of the rate at which they would borrow. During a financial crisis, banks have an incentive to announce biased interest rates for two reasons.

- A lower interest rate will signal higher creditworthiness.
- The profitability of trading positions can be easily improved by adjusting the LIBOR.

The authors recommend that benchmarks should be based not on estimates of banks but actual transactions. Since the interbank market may be thin, a much wider set of borrowing transactions can be used. Alternative benchmark reference rates can also be considered.

The original purpose of LIBOR was to measure the average borrowing costs of banks. But the rise of interest rate derivatives has changed the scenario dramatically. LIBOR has become a reference rate for derivatives trading and risk transfer. The spread between the banks' borrowing rate and LIBOR is no longer the key factor.

The desire to trade in liquid contracts has led to a large number of trades based on LIBOR. The authors argue that these trades can be better served by using benchmarks other than LIBOR. A good example is the interest rate on T bills in the US. This rate is not tied to the bank's cost of funds and is also not manipulated easily.

The role of benchmarks

Benchmarks can be used for reducing asymmetric information about the value of the underlying traded financial instrument. Valuing and settling a derivatives contract at the time of expiry is difficult without a benchmark.

In OTC markets, benchmarks can improve matching efficiency and increase participation by less informed agents. In the absence of a benchmark, intermediaries can take advantage of the situation.

Benchmarks reduce the profit margins of intermediaries but compensate them through increased volumes. As a matter of fact, LIBOR was created in 1969 by

a consortium of London based banks to attract international borrowers such as the Shah of Iran. By 1984, LIBOR had become the official benchmark of the British Bankers' Association.

Less informed investors who depend on agents for trade execution will feel more comfortable if the presence of benchmarks incentivizes better execution.

Hedging based on bank specific credit spreads is difficult. A benchmark allows banks to hedge their interest rate risk more easily.

Once a benchmark has been established, it can attract huge volumes of trading. The first incentive is to tap the information related benefits of a benchmark. The second is higher liquidity, which lowers trading costs. Once liquidity is established, more instruments can emerge.

Manipulation of LIBOR

During the financial crisis, no bank wanted to appear less creditworthy than its peers. Banks began to understate their true borrowing costs. The second motive was to profit on positions in derivative instruments that had already been taken. There is evidence of traders trying to persuade bank officials in charge of rate submission to the poll and also of collusion among banks to manipulate the rate.

The benchmark definition and fixing methodology must be made more difficult to manipulate. This is possible only if the rate is fixed on the basis of large number of transactions. The set of instruments must be broadened and the time window over which the rates are averaged must be increased. A broad range of instrument means more heterogeneity but the way to deal with the problem is to use weighting.

Bank lending has now been completely overshadowed by interest rate derivatives based on LIBOR. Banks use derivatives to hedge exposure to the general level of interest rates, to make a speculative bet on market wide interest rates or to intermediate such trades. For such trades, LIBOR incorporates a bank credit component that is a bit of a nuisance. This inconvenience is more than offset by the liquidity advantages of trading in the deep LIBOR based derivatives market.

Derivatives traders care a great deal about liquidity and transparency but may not be interested in exposure to the bank credit risk component of LIBOR.

However, even if LIBOR is less than an ideal fit for most derivative users, it is not easy to switch to another benchmark.

The incentives for manipulation are strong because of the relative scales of the two markets- the much larger derivatives market and the much smaller underlying market. With the underlying inter bank borrowing market being so thin, the problem will not go away, even if we were to shift from judgment based to transaction based determination of LIBOR.

Towards a two-rate approach

The authors find considerable merit in a two-rate approach. One benchmark would be an improved version of LIBOR or LIBOR+. This benchmark would be transaction-based, subject to a tougher monitoring regime and hence less susceptible to manipulation. This benchmark would be suitable in situations such as bank lending where credit risk considerations are important.

The second benchmark would be based on a riskless or near riskless rate established in a broad and deep market. This rate would make sense to interest rate derivative traders who account for bulk of the trading volumes. This benchmark would be well protected from manipulation.

Although a transaction-based approach has clear appeal, it may not be that easy to implement. 3 month borrowing volumes in the interbank market are not high. Indeed, there has been a secular decline in interbank borrowing due to the expansionary monetary policies of the central banks in recent years. Banks do not really need to borrow in the interbank markets to meet their liquidity needs. For LIBOR to serve as an effective benchmark, its fixing should be broadened to include unsecured bank borrowings from all wholesale sources, not just other banks and also non-bank investors in bank commercial paper and large denomination certificates of deposits.

Even if a transaction-based LIBOR methodology can be made to work well, the challenge of shifting existing contracts based on LIBOR to a new benchmark still remains.

For 3-month tenor, transactions in the underlying bank loans market are about $ 1bn on a typical day. But in the swap market, that uses LIBOR as a reference rate, the volumes are $ 100 trillion. So, there is a strong incentive for a trader with a large derivatives position to manipulate even a transaction based LIBOR. So, what we need is a more robust benchmark based on risk free interest rate.

Riskless reference rate

The Fed sets certain interest rates directly such as the interest it pays to banks on excess reserves and the overnight reverse repurchase rate. These rates are directly administered by the Fed and less subject to manipulation. But there would be problems if the spread between the rate on excess reserves and the reverse repurchase rate is large. Another concern is about the relevance of overnight rates for the settlement of floating rate contracts based on longer maturities.

The rate on short term Treasury Bills is another natural candidate for a riskless reference rate. This market is not manipulation proof but is deeper and more active than the market for unsecured bank borrowings. One reason for the lack of enthusiasm for interest rate derivatives is that during times of market stress, the prices of T-bills go up in relative terms.

Another near riskless rate is the Treasury General Collateral Repo rate. Such a repurchase agreement accepts a general class of treasury and other related securities as collateral and does not specify a particular security. So, this rate is effectively the average rate at which dealers obtain overnight financing secured by Treasury securities. Although there is no official General Collateral Repo rate, the Treasury General Collateral Finance Rate is published by the Depository Trust and Clearing Corporation. This rate spikes up during periods of market stress. It is also not very active at maturities beyond one week.

A more novel benchmark is the compounded interest rate implied by the overnight general collateral rates over the three months leading up to the settlement date. This rate is not so easy to manipulate. But a potential drawback of this rate is its backward-looking nature.

One more candidate is the overnight index swap (OIS) rate. This is the interest rate on a so called Overnight Index Swap which pays a predetermined fixed interest rate in exchange for receiving the compounded daily Federal Funds rate over the 3-month term of the contract. The 3-month OIS rate can be thought of as the market's forward-looking expectation for the average Federal Funds rate that will prevail over the next 3 months. The 3-month OIS rate is a reasonable proxy for a riskless rate. It also enjoys the advantage of not having the kind of safe haven premium which T Bills have. But the OIS market itself is still a derivatives market where there is not yet heavy trading.

The transition from LIBOR

If LIBOR were to be replaced by LIBOR +, a transaction based rate, contracts would not need to be rewritten but the fixing would change. But it might provoke legal challenges in which one party to a contract claims its obligations should be discharged, based on the doctrine of "contract frustration". Contract frustration risks can be minimized if LIBOR+ and LIBOR have the same conceptual basis and the two rates have similar levels as of the transition date, as well as similar statistical properties. It would seem a seamless transition can be achieved for 1-month and 3-month tenors but there are doubts in case of the 6-month tenor.

The transition from LIBOR to risk free rate will have to be achieved in a different way. The differences between LIBOR and these alternative benchmarks are different both conceptually and statistically. So, it may not be easy to avoid legal challenges based on contract frustration. The majority of already existing derivatives contracts should not be altered but allowed to roll off over time. In a period of 5 years, a substantial portion of the derivatives contracts would roll off. Regulators should encourage newly written derivative contracts to use a new benchmark instead of LIBOR. For example, capital charges can be imposed on derivatives based on LIBOR. It is not clear how much regulatory pressure should be exerted to facilitate the transition. Some derivatives users might actually prefer a riskless rate as opposed to LIBOR which contains a component for bank credit risk. But all users may not like to give up LIBOR. So, the regulators might have to proceed a little cautiously.

Concluding notes

There are two policy objectives. One is to have large deep and liquid interest rate derivative markets. The second is to prevent manipulation. But the larger the derivatives market compared to the underlying, the more the incentives for manipulating the underlying benchmark. Thus, to support a large derivative market, some level of manipulation will have to be tolerated as an inevitable cost of doing business. In other words, market design will have to be complemented by legal safeguards for preventing manipulation.